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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,961	12/03/2003	Eric C. Erike	TRW(VSSIM)5875-1	4365
26294 7590 11/06/2007 TAROLLI, SUNDHEIM, COVELL & TUMMINO L.L.P. 1300 EAST NINTH STREET, SUITE 1700 CLEVEVLAND, OH 44114			EXAMINER MCGUTHRY BANKS, TIMA MICHELE	
			ART UNIT 1793	PAPER NUMBER
			MAIL DATE 11/06/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/726,961

Applicant(s)

ERIKE, ERIC C.

Examiner

Tima M. McGuthry-Banks

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3, 5, 7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5, 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION***Status of Claims***

Claims 1, 5 and 7 are currently amended. Claim 3 is as originally filed.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 22 January 2007 has been entered.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. C. 103(a) not included in this action can be found in a prior Office action.

Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as obvious over Toyooka et al (US 6,290,789 B1).

Toyooka et al discloses a steel pipe treated with induction heating (column 12, line 12).

The composition of the pipe as compared to the claimed invention is as follows:

Component	Claim 1 (wt. %)	Toyooka et al (wt. %)	
C	0.07-0.12	0.04-0.3	broad range
Mn	0.7-1.6	0.01-2.0	broad range

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P	up to about 0.02	0.025 or less	broad range
S	up to about 0.015	0.01-3	overlapping range
Si	0.06-0.35	1.5 or less	overlapping range
Cr	0.25-1.20	2 or less	broad range
Ni	up to about 0.65	2 or less	broad range
Mo	0.2-0.7	1 or less	broad range
Cu	up to about 0.35	1 or less	broad range
Al	0.02-0.06	0.001-0.10	broad range
V	up to about 0.05	0.5 or less	broad range

Regarding the overlapping and broad ranges disclosed, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. See MPEP § 2144.05.

Regarding the elongation in Claim 3, Tables 2, 4, 6, 8, 10, 11, 13, 15, and 17 show elongation of at least 14%. Regarding the yield strength in Claim 3, Tables 6, 8, 10, 11, 13, 15, and 17 show a range of yield strength up to 99,786 psi; a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. See MPEP § 2144.05. Regarding the tensile strength in Claim 3, Tables 2, 4, 6, 8, 10, 13, 15, and 17 show a range of tensile strength of up to 136,770 psi.

Regarding the plastic properties in Claim 1 and the strength and elongation in Claim 3, where the claimed and prior art products are identical or substantially identical in structure or

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composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. See MPEP § 2112.03.

Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toyooka et al in view of Kondo et al (US 6,024,808).

Toyooka discloses a method for producing a steel pipe. There is no particular limitation concerning the method for producing the base steel pipe (column 6, lines 16-18). The composition is as follows:

Component	Claim 1 (wt. %)	Toyooka et al (wt. %)	
C	0.07-0.12	0.04-0.3	broad range
Mn	0.7-1.6	0.01-2.0	broad range
P	up to about 0.02	0.025 or less	broad range
S	up to about 0.015	0.01-3	overlapping range
Si	0.06-0.35	1.5 or less	overlapping range
Cr	0.25-1.20	2 or less	broad range
Ni	up to about 0.65	2 or less	broad range
Mo	0.2-0.7	1 or less	broad range
Cu	up to about 0.35	1 or less	broad range
Al	0.02-0.06	0.001-0.10	broad range
V	up to about 0.05	0.5 or less	broad range

Regarding the overlapping ranges, in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05.

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Regarding the broader ranges, a prima facie case of obviousness exists (MPEP § 2144.05). The heated base steel pipe is subjected to drawing by using a three-roll-type reducing mill (column 10, lines 26-28). Following, an induction heating method is performed (column 12, line 12; though Toyooka prefers a temperature range of 600-700 °C, the product pipe would still have the same results at a temperature deviating from the above temperature (lines 23-27). However, Toyooka et al do not disclose beginning with a billet, reducing the diameter of the billet by hot rolling, piercing the billet, or reducing with cold drawing as claimed in Claim 5, the plastics properties as in Claim 5, or the temperature as in Claim 7.

Regarding forming a billet, hot rolling, and piercing, Kondo et al '808 teaches making a steel pipe by hot working. A round billet is then pierced and rolled to a hollow shell by a Mannesmann piercer, wherein the hollow shell is elongated into a pipe by an elongating rolling mill (column 3, lines 11-15). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the steel base pipe would be prepared as taught by Kondo et al, since rolling applies light reduction to the cast billet in order to improve metallographic structure (Kondo, column 5, lines 66 and 67), and piercing obviously hollows out the billet for processing into a pipe or tube.

Regarding cold drawing, the Metals Handbook defines drawing of tubes is one of the oldest metal-forming operations. It is usually conducted at room temperature using a number of passes or reductions (page 330). It would have been obvious to one of ordinary skill in the art at the time the invention was made to reduce the steel pipe in Toyooka et al with the cold drawing process taught in the Metals Handbook, since cold drawing allows for excellent surface finishes

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and closely controlled dimensions to be obtained in long products that have constant cross sections (page 330).

Regarding the temperature, Kondo et al '865 teaches a complementary heating step at a range of 850-1100 °C such as induction heating after rolling in the production of steel tubes (column 16, lines 18-20; column 17, lines 29-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the induction furnace method of Kondo et al '865 in the process of Toyooka et al, since Kondo et al '865 teaches that ferrite grows at temperatures lower than 850 °C and grains grow coarse if the temperature exceeds 1100 °C (column 17, lines 29-32). The examiner notes that Toyooka et al teaches a preferred temperature range of 600-700 °C in column 12, lines 22 and 23; however, Toyooka et al does not teach away from using a different range.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Derwent abstract of JP 55097423 A (Derwent Acc. No. 1980-63099C) discloses a tempered steel pipe composed of < 0.3% C, 0.02-1.0% Si, 0.3-2.0% Mn, < 0.03% P, < 0.01% S, ≥ 1% Al, < 0.06% Mo, < 1.0% Cr, < 0.15% Nb, < 0.15% V, < 0.15% Ti, < 0.15% B, and balance Fe. The steel pipe is formed from steel plate. Erike (US 6,173,495 B1) teaches manufacturing a low-carbon steel pressure vessel comprising 0.07-0.15% C, 1-2% Mn, less than about 0.02% P, less than about 0.015% S, 0.5-2.10% Cr, 0.2-1.0% Ni, 0.2-0.7% Mo, less than about 0.65% Cu, less than about 0.25% residual elements, and the rest iron.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tima M. McGuthry-Banks whose telephone number is (571) 272-2744. The examiner can normally be reached on M-F 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TMM

1 November 2007

ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER